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(54) Title: CONTROLLED REMOTE PRODUCT INTERNET ACCESS AND DISTRIBUTION

(57) Abstract: A system for accessing a remote computer network. The system comprising (a) a package; (b) an identification tag coupled to the package that stores identifying data unique to the package; (c) an interrogator located external to the package; and (d) a computer system coupled to the interrogator for exchanging information with a remote site. The interrogator transmits a query to the identification tag and the identification tag responds by communicating the identifying data to the computer system, thereby accessing the remote computer network.

CONTROLLED REMOTE PRODUCT

INTERNET ACCESS AND DISTRIBUTION

5

FIELD OF THE INVENTION

This invention relates to the field of packaging, and more particularly to a

package interfacing to a computer system.

BACKGROUND OF THE INVENTION

10   Promotional items have long been associated with products, being obtained

through submitting coupons, distributed during check out, or attached to the

package directly. Coupons, promotional product distribution, and package

bundling all require extensive handling and overhead. Promotional items result in

duplication to a frequent buyer of a product, or are simply ignored.

15   There is a need to be able to distribute promotional items with reduced

overhead. There is a further need to be able to provide promotional items, which

reduce duplication.

Manufacturers and suppliers frequently have additional information of

value to a purchaser or may require an exchange with or receipt of data from a

20   purchaser, such as warranty or safety information.

SUMMARY OF THE INVENTION

The present invention is a system for accessing a remote computer network.

The system comprising (a) a package; (b) an identification tag coupled to the

package that stores identifying data unique to the package; (c) an interrogator

25   located external to the package; and (d) a computer system coupled to the

interrogator for exchanging information with a remote site. The interrogator

transmits a query to the identification tag and the identification tag responds by

communicating the identifying data to the computer system, thereby accessing the

remote computer network.

5   The present invention includes a method for accessing a remote computer

network, which comprises the steps of: (i) providing an integrated system

comprising, (a) a package, (b) an identification tag coupled to the package that

stores identifying data unique to the package; (c) an interrogator located external to

the package, and (d) a computer system coupled to the interrogator for exchanging

10   information with a remote site; (ii) sending a query signal from the interrogator to

the identification tag; (iii) responding to the query signal by communicating the

identifying data from the identification tag to the computer system; (iv) executing a

script associated with the identifying data in the computer system; and, (v)

instructing the computer system to access the remote computer network, wherein

15   the script contains programmed instructions.

BRIEF DESCRIPTION OF THE DRAWINGS

          A more complete understanding of the present invention may be obtained

from consideration of the following description in conjunction with the drawings in

which:

20   FIG. 1 is a functional overview of a system employing the present

invention.

DETAILED DESCRIPTION

The present invention accesses a remote computer network through a package which has identifying information associated with it. The remote computer network provides the user with product related information in the form of advertising, promotions, product specifications, warranties, and the like. The system comprises (a) a package; (b) an identification tag coupled to the package that stores identifying data unique to the package; (c) an interrogator located external to the package; and (d) a computer system coupled to the interrogator. The interrogator transmits a query to the identification tag and the identification tag responds by communicating the identifying data to the computer system, thereby accessing the remote computer network.

The package may be any material or structure that holds a product or data. For example paper, cardboard, plastic, wood, metal, and the like may be used.

The identification tag may be, for example, a bar code, a radio frequency identification (RFID) tag, data recorded magnetically, or any suitable identifying device.

The identifying data carried by the identification tag comprises information such as, product identification, serial number, activation codes for executing a script file, a URL or other reference to a web site, or any similar type of information.

The identifying data is retrieved by an interrogator, which transmits a query to the identification tag. The identification tag responds to the query by communicating the identifying data. Thus the interrogator selected for use in the present invention is capable of communicating with the identification tag. Suitable

interrogators include, but are not limited to laser scanners, RFID readers, and the like, depending on the particular identification tag employed.

In one embodiment, bar codes are employed as at least a portion of the identification tag. They are graphical representations of information encoded

5   within a series of bars and spaces. Some bar code symbologies, such as UPC-A, have a specific bar code pattern for each character based upon the location of that character within the bar code. For example, a number 3 in the first part of the bar code is encoded differently than a number 3 in the second half of the bar code. Still other symbologies encode data in pairs and are dependent upon the preceding

10   or following characters as to which pattern is used.

All bar codes have certain bar code patterns which tell the reading device when to start reading the bar code and when to stop reading. PrintBar III automatically adds all Start and Stop characters within the bar code. In some bar code symbologies, an option is provided to either print or not print the Human

15   Readable portion of these characters. Human Readables are the alphabetic and numeric characters for the data encoded within the bar code. When used, Human Readable (HR) characters may be printed below or above the bar code. Check Digits mathematically calculated values which help the reading device determine if the bar code was read correctly. Check digit characters are usually added to the

20   end of the bar code. Some symbologies, such as Code 39, do not need check digit characters as they are designed to be self checking. Other symbologies, such as UPC-A, require check digits be added. Supplements are a separate, shorter bar code that can be optionally added to the end of certain symbologies such as UPC,

EAN and JAN to encode prices, dates, etc. When used, Human Readable

characters are always printed above the supplement.

2-Dimensional bar codes enable more information to be encoded in a

smaller space than a traditional 1-dimensional bar code. Essentially there are two

5   types of 2-dimensional bar codes currently in use: stacked codes; and, matrix

codes.

Stacked symbology, evolved from 1-dimensional bar codes, such as Code

39 and Code 128 symbologies, which are stacked in horizontal layers to create a

multirow symbologies, Code 49 and Code 16K respectively.

10   Matrix Symbologies, which are scaleable, provide higher data densities

than stacked codes in most cases, as well as are orientation independent. A matrix

code is comprised of a pattern of cells which can be square, hexagonal or circular

in shape. Data is encoded into the matrix through the relative positions of the light

and dark areas. Encoding schemes can utilize error detection and correction

15   techniques for improved reading reliability, including enabling the reading of

partially damaged symbols.

Composite bar codes is a class of symbology in which two symbols are

printed in close proximity to each other and contain linked data. Typically, one

component is a linear bar code symbol and the other component is a multi-row or

20   matrix bar code symbol. The composite bar code enables different information to

be available to different applications during an items' life cycle. A typical use of a

composite bar code is in the pharmaceutical industry where both product

identification and supplementary information, such as expiration date and batch

number, are encoded in a small area for access in different applications during the

product life cycle. The UCC.EAN composite symbol standard includes EAN-13 or UPC-A or UCC.EAN 128 symbols, as well as the RSS (reduced space symbologies) together with a two-dimensional multirow symbol.

An interrogator for bar codes comprises a bar code scanner, which typically

5   utilizes CCD or laser technology, either hand held or fixed mount. Such scanners essentially contain a means for illuminating the bar code symbol and a means for measuring the reflected light. The reflected light data is converted into a digital signal, which can then be decoded. A typical CCD scanner utilizes a flood of light, such as an LED light source, to illuminate the bar code symbol, which is

10 reflected back to an array of photosensors. A laser scanner typically utilizes a laser beam, having a source such as a laser diode, which is spread into a horizontal arc by a rapidly moving mirror. More sophisticated scanning patterns including a moving-beam raster, cross-hatched, or starburst pattern can provide improved readability and omni-directional scanning.

15 In a preferred embodiment, the identification tag comprises a radio frequency identification (RFID) tag. RFID tags come in a wide variety of shapes and sizes. RFID tags maybe categorized as either active or passive. Active RFID tags may be powered by an internal battery and are typically read/write, i.e., tag data can be rewritten and/or modified. An active tag memory size varies according

20 to application requirements. Some systems operate, for example with up to 1MB of memory. In a typical read/write RFID system, a tag can provide a set of instructions or information, and the tag can receive encoded information. This encoded data then becomes part of the history of the tagged product. The battery-

supplied power of an active tag generally gives it a longer read range. The trade

off is greater size, greater cost, and a limited operational life.

Passive RFID tags operate without a separate external power source and

obtain operating power generated from the reader. Passive tags consequently are

5   usually lighter in weight than active tags, less expensive, and offer a virtually

unlimited operational lifetime. The trade off is that passive tags have shorter read

ranges than active tags and require a higher-powered reader.

Read-only tags are typically passive and are programmed with a unique set

of data (usually 32 to 128 bits) that cannot be modified. Read-only tags may

10   operate as a key or index into a database, in the same way as linear barcodes

reference a database containing modifiable product-specific information.

When a RFID tag is used, an antenna is included in the system of the

present invention. The antenna receives and transfers radio signals to activate the

tag and to read and write data to the tag. Antenna may be a variety of shapes and

15   sizes. For example, an antenna can be built into a doorway to receive tag data

from persons or things passing through the door. An electromagnetic field

produced by an antenna can be constantly present when multiple tags are expected

continually. If constant interrogation is not required, a sensor device can activate

the field.

20   An antenna may be configured with the transceiver/decoder to become part

of the reader or interrogator, which can be configured either as a handheld or a

fixed-mount device. The reader emits radio waves across distances of anywhere

from one inch to 100 feet or more, depending upon the signal power output and the

radio frequency used. When an RFID tag passes through an electromagnetic

- 8 -

sensing zone, the tag responds to the activation signal of the reader and causes an

associated antenna to emit radio waves. The reader decodes the data encoded in a

memory portion of an integrated circuit of the tag. The data is passed to a host

computer for processing.

5   Frequency ranges also distinguish RFID systems. Low-frequency (30 kHz

to 500 kHz) systems typically have short reading ranges and lower system costs.

They are most commonly used in security access, asset tracking, and identification

applications. High-frequency (850 mHz to 950 mHz and 2.4 gHz to 2.5 gHz)

systems typically offer long read ranges (greater than 90 feet) and high reading

10   speeds.

A significant advantage of RFID systems is the non-contact, non-line-of-

sight nature of the technology. Tags can be read through a variety of substances

such as snow, fog, ice, paint, crusted grime, and other visually and environmentally

challenging conditions, where barcodes or other optical read technologies are

15   problematic. RFID tags can also be read in challenging circumstances at high

speeds, typically responding in less than 100 milliseconds.

The range that can be achieved with an RFID system is determined

essentially by: power available at the reader/interrogator to communicate with the

tag(s), power associated with the tag to respond, and environmental conditions and

20   structure, the former being more significant at higher frequencies, including signal

to noise ratio.

Although the level of available power is a primary determinant of range,

the manner and efficiency with which that power is employed also influences the

range. The field or wave delivered from an antenna extends into the space adjacent

the antenna and its strength diminishes with respect to distance. Antenna design will determine the shape of the field or propagation wave delivered, so that range will also be influenced by the angle subtended between the tag and antenna.

In space free of any obstructions or absorption mechanisms, the strength of

5 a field declines in inverse proportion to the square of the distance between transmitter and receiver. For a wave propagating through a region in which reflections can arise from the ground and from obstacles, the reduction in signal strength can vary quite considerably. In some cases, signal strength may vary as an inverse fourth power of the distance between transmitter and receiver. Where

10 different propagation paths arise, the phenomenon is known as "multi-path attenuation." At higher frequencies, absorption due to the presence of moisture can further influence range. It is therefore important in many applications to determine how the environment, internal or external, can influence the range of communication. Where a number of reflective metal 'obstacles' are to

15 encountered within the application to be considered, and can vary in number from time to time, it may also be necessary to establish the implications of such changes through an appropriate environmental evaluation.

The identifying data that is communicated from the identification tag is sent to a computer system, which is capable of processing the identifying data and

20 executing instructions derived from the data. For example, the identifying data may provide the computer system with a product identification number, which instructs the computer system to execute a script file containing a set of instructions. Depending on the instructions, the computer system will link or access a remote computer system.

The present invention also includes a method for accessing a remote computer network. The method comprises the steps of: (i) providing an integrated system comprising, (a) a package, (b) an identification tag coupled to the package that stores identifying data unique to the package; (c) an interrogator located

5   external to the package, and (d) a computer system coupled to the interrogator for exchanging information with a remote site, (ii) sending a query signal from the interrogator to the identification tag; (iii) responding to the query signal by communicating the identifying data from the identification tag to the computer system; (iv) executing a script associated with the identifying data in the computer

10   system; and, (v) instructing the computer system to access the remote computer network, wherein the script contains programmed instructions.

Although the present invention is particularly well suited for promotional product distribution, and shall be so described, the present invention is equally well suited for use in controlled product distribution, progressive product distribution,

15   warranty registration, service, and product updates.

Referring to FIG. 1 there can be seen a functional overview of a system employing the present invention. A package 10 contains an identification tag 12. The identification tag 12 may be a linear bar code, composite bar code, 2-dimensional bar code, RFID or other suitable identification tag 12. The

20   identification tag 12 contains encoded data corresponding to a unique product identification, serial number, and URL or other reference to a Web site. Optionally, the identification tag 12 can contain a script (a set of commands) to be executed by the web site, or may reference a file or an index, which corresponds to a script.

A reader 14 interrogates the identification tag 12. The interrogator 14 is coupled to a computer system 16. A remote computer network 18 is accessed by the computer system 16 over the Internet 20 to establish a link. The link may be established with a conventional Web browser utilizing a plug in to interface to the

5   reader 14. Alternatively, the link can be established through a client application, including a thin client running in the background of the computer system 16. The Web site is identified for example by a URL, which may be contained in the encoded data.

When a link has been established to the Web site identified by the URL, the

10   unique product identification and optional serial number are transferred to the remote computer network 18. The remote computer 18 or the web browser at the computer system 16 can then execute a script, such as that identified in or contained in the encoded data. The web browser would then display a suitable welcome screen from computer storage 22 and identify the package 10. The link

15   could then provide information about the product, including user guides, supply sales, warranty, servicing, and other information of interest to the consumer or end user. Consumer or end user information stored in the form of a "cookie" is then linked to the remote computer 18. The cookie may be stored by the web browser at the computer system, from operating system stored information, or through a

20   user sign-on that then stores a cookie. By completing a questionnaire, a first time user creates a cookie that contains consumer/end user information, which can be used for product registration.

Package 10 can then be used to distribute a promotional item. For example, promotional items could be mailed or shipped to the consumer based upon

information obtained from the consumer. In a preferred embodiment, the

promotional item is in digital form, which can be directly distributed to the

consumer through the link established between the computer system 16 and the

remote computer network 18. Suitable digital items include screen savers, fonts,

5   computer games, textual material, music (such as M-PEG3) and video content.

The present invention is not limited to promotional product distribution, but can be

used for direct consumer product distribution, where the consumer obtains a

package 10 containing the identification tag 12. The package 10 can be prepaid at

a local retail store, mailed or distributed free and then payment is completed

10   through an e-commerce solution.

Progressive sequence products can be distributed, where a consumer gets

another feature or level in software such as a computer game when the consumer

acquires another package 10, or a different package 10. The remote computer

network 18 keeps an accounting of consumer purchases for which promotional

15   items are distributed and identities of particular consumers. Using a user sign-in

and password, along with information contained on a local file, such as a cookie,

the identity of a consumer may be authenticated, thus reducing fraudulent

promotional/product distribution. Progressive rewards can be offered, serving to

promote brand and product loyalty. With a product such as a computer

20   game/video game, individual user activity can be tied into distribution of

personalized features.

When the package 10 is associated with an expensive luxury item, such as

jewelry, watches, etc., the manufacturer can authenticate the product. By

accessing the serial no. in the encoded data along with the consumer information,

automatic product registration, warranty and service, can be accomplished and
encouraged.

In view of the foregoing description, numerous modifications and
alternative embodiments of the invention will be apparent to those skilled in the

5   art. A customer interface agent may be a thin agent with minimal functionality or
may be enhanced to provide developmental resources and assistance to the
customer, including use of an intelligent agent to provide assistance. Accordingly,
this description is to be construed as illustrative only and is for the purpose of
teaching those skilled in the art the best mode of carrying out the invention.

10   Details of the structure may be varied substantially without departing from the
invention.

WE CLAIM:

1   1.   A system for accessing a remote computer network, comprising:

2   a package;

3   an identification tag coupled to said package that stores identifying data

4   unique to said package;

5   an interrogator located external to said package;

6   a computer system coupled to said interrogator for exchanging information

7   with a remote site;

8   wherein said interrogator transmits a query to said identification tag and

9   said identification tag responds by communicating said identifying data to

10   said computer system, thereby accessing said remote computer network.

1   2.   The system of claim 1, wherein said identification tag is selected from the

2   group consisting of: a linear bar code, a composite bar code, a 2-

3   dimensional bar code, a radio frequency identification transponder, and

4   data recorded magnetically.

1   3.   The system of claim 1, wherein said identifying data further comprises data

2   selected from the group consisting of: a product identifier, a serial number,

3   a URL or other reference to a web site, and combinations thereof.

1   4.   A method for accessing a remote computer network, which comprises the

2   steps of:

3   (i) providing an integrated system comprising,

4   a package,

5   an identification tag coupled to said package that stores identifying

6   data unique to said package,

7   an interrogator located external to said package, and

8   a computer system coupled to said interrogator for exchanging

9   information with a remote site,

10   (ii) sending a query signal from said interrogator to said identification tag;

11   (iii) responding to said query signal by communicating said identifying data

12   from said identification tag to said computer system;

13   (iv) executing a script associated with said identifying data in said

14   computer system; and,

15   (v) instructing said computer system to access said remote computer

16   network,

17   wherein said script contains programmed instructions.

1   5.   The method of claim 4, wherein said identification tag is selected from the

2   group consisting of: a linear bar code, a composite bar code, a 2-

3   dimensional bar code, a radio frequency identification transponder, and

4   data recorded magnetically. -

1   6.   The method of claim 4, wherein said identifying data is selected from the

2   group consisting of: a product identifier, a serial number, a user identifier, a

3   URL or other reference to a web site, and combinations thereof.

1   7.   A method for providing product materials by accessing a remote computer

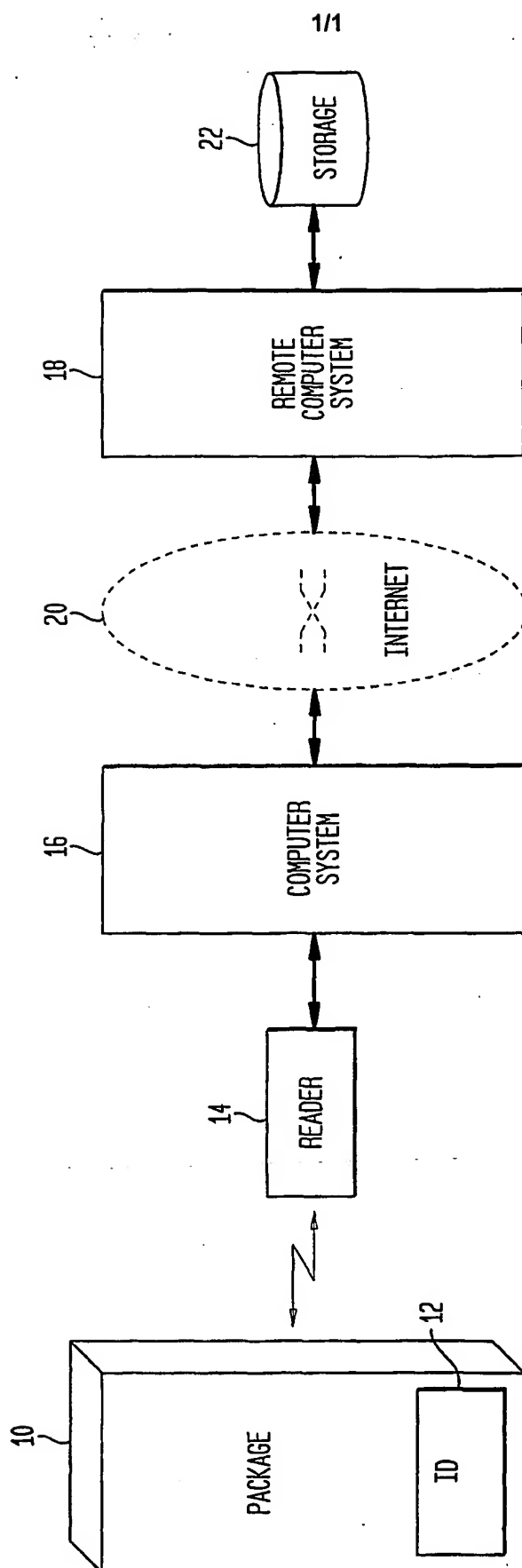2   network, comprising the steps of:

3   (i) providing an integrated system comprising,

4   a package,

5   an identification tag coupled to said package that stores identifying

6   data unique to said package,

7   an interrogator located external to said package, and

8   a computer system coupled to said interrogator for exchanging

9   information with a remote site,

10   (ii) sending a query signal from said interrogator to said identification tag;

11   (iii) responding to said query signal by communicating said identifying data

12   from said identification tag to said computer system;

13   (iv) executing a script associated with said identifying data in said

14   computer system,

15   wherein said script contains programmed instructions;

16   (v) instructing said computer system to access said remote computer

17   network; and

18   (vi) sending said product materials from said remote computer network to

19   said computer system.

1   8.   The method of claim 7, wherein said product materials is selected from the

2   group consisting of: product information, instruction manuals, advertising,

3   registration materials, promotional items, and mixtures thereof.

1   9.   The method of claim 8, wherein said promotional items are selected from

2   the group consisting of: screen savers, fonts, computer games, text files,

3   music files, video files, and mixtures thereof.

1   10.   The method of claim 7, wherein said product materials are downloadable.

1   11.   The method of claim 7, wherein said identification tag is selected from the

2   group consisting of: a linear bar code, a composite bar code, a 2-

3   dimensional bar code, a radio frequency identification transponder, and

4   data recorded magnetically.

1   12.   The method of claim 7, wherein said identifying data is selected from the

2   group consisting of: a product identifier, a serial number, a user identifier, a

3   URL or other reference to a web site, and combinations thereof.

1   13.   The method of claim 7, wherein a cookie is used to communicate between

2   said remote computer.

FIG. 1

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(71) Applicant *(for all designated States except US)*: INTER-
NATIONAL PAPER [US/US]; 1422 Long Meadow Road,
Tuxedo, NY 10987 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*:   RUDOLPH,
Richard, F. [US/US]; 702 Glencrest Lane, Loveland, OH
45140 (US). BROOKS, Deena, Y. [US/US]; 2010 Allen
Court Drive, Germantown, TN 38139 (US).

(74) Agents: COX, Donald, J., Jr. et al.; Gibbons, Del Deo,
Dolan, Griffinger & Vecchione, One Riverfront Plaza,
Newark, NJ 07102 (US).

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MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL,
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(57) Abstract: A system for accessing a remote computer network. The system comprising (a) a package; (b) an identification tag
coupled to the package that stores identifying data unique to the package; (c) an interrogator located external to the package; and
(d) a computer system coupled to the interrogator for exchanging information with a remote site. The interrogator transmits a query
to the identification tag and the identification tag responds by communicating the identifying data to the computer system, thereby
accessing the remote computer network.

INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7   G06F17/30

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7   G06K   G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 45761 A (CURKENDALL LELAND D ; PAPE WILLIAM R (US)) 16 September 1999 (1999-09-16)	1-6
Y	page 11, line 11 - page 37, line 11; figures	7,8, 10-12
Y	WO 97 01137 A (SOLAR COMMUNICATIONS INC) 9 January 1997 (1997-01-09) page 8, line 12 - page 22, line 23	7,8, 10-12
X	WO 97 50065 A (PAR GOVERNMENT SYSTEMS CORP) 31 December 1997 (1997-12-31)	1,2
A	page 31, line 33 - page 140, line 35; figures	3-13
A	WO 98 16070 A (AMTECH CORP) 16 April 1998 (1998-04-16) page 10, line 11 - page 47, line 24	1,2,4,5, 7,11

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| X | Further documents are listed in the continuation of box C. | | X | Patent family members are listed in annex. |

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the International filing date but later than the priority date claimed

"T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the International search	Date of mailing of the International search report
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Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Geoghegan, C.

Form PCT/ISA/210 (second sheet) (July 1992)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	"DISTRIBUTING UNIFORM RESOURCE LOCATORS AS BAR CODE IMAGES" IBM TECHNICAL DISCLOSURE BULLETIN, IBM CORP. NEW YORK, US, vol. 39, no. 1, 1996, page 167, XP0000556360 ISSN: 0018-8689 page 167, line 1 - line 30	1,2,4,5, 7,11
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INTERNATIONAL SEARCH REPORT

Information on patent family members

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